R.v.WALDHEIM WIEN.
L.Kozelue

CARLSBAD

Thermal Waters and Natural Spring Products

Carlsbader Mineralwasser-Versendung
Löbel Schottländer
CARLSBAD.

Brief Notes

concerning the

Carlsbad Thermal Waters and Natural Mineral Spring Products

compiled by **Dr. L. Sipöcz,**

Manager of the Carlsbad Municipal Sprudel Salt Work.

The famous Carlsbad Spa, situated in a romantic ravine, surrounded by magnificent woods, has been known for over 500 years. It possesses 16 thermal springs, including the world-renowned „Sprudel“ and „Muhlbrunn“, with large promenades and five bathing establishments, replete with every comfort and equipped with the latest therapeutic appliances and adjuncts, and containing altogether 700 bath-rooms. The season continues all the year round and the place is attended annually by over 75,000 visitors in search of health. The number of the medical staff is more than 170. Over 1200 boarding houses with 25,000 apartments afford comfortable accommodation at all times.

Particulars concerning the local conditions of the Spa may be obtained from the „Bürgermeisteramt“ (Mayor's Office), in its capacity as Spa Administration. Pamphlets concerning the Spa are sent out by the same, free of charge, in all modern languages.

A. Mineral Water.

Carlsbad Water is among the number of alkaline-saline mineral waters in which, side by side with bicarbonate of soda and carbonic acid, sulphate of soda and chloride of sodium predominate, while the percentage of bicarbonate of lithia is considerable.

The Carlsbad Thermal Water is clear and limpid, without any characteristic odour, and of slightly saline taste.

The 16 thermal springs used for drinking vary in temperature between 31 and 58,5^0 Reaumur (38,9-73,2^0 C. or 102,2^0-163,6^0 Fahr.) and may therefore be classified as cool, medium and hot. The **„Sprudel“** is the oldest and most prolific spring, supplying about 2000 litres of water per minute. The other drinking springs yield from 2½ to 36 litres per minute.

According to analysis made by Professors E. Ludwig and J. Mauthner, the Carlsbad Water is of the following composition:

Bicarbonate of iron	0,046
„ „ manganese	0,003
„ „ magnesia	2,894
„ „ lime	5,206
„ „ strontium	0,005
„ „ lithia	0,226
„ „ soda	20,565
Sulphate of potash	1,862
„ „ soda	24,053
Chloride of sodium	10,418
Fluoride of sodium	0,051
Borate of soda	0,040
Phosphate of lime	0,007
Oxide of aluminium	0,004
Silicic acid	0,715
Carbonic acid, free	1,898
Caesium, Rubidium, Bromine, Jodine, Arsenic, Antimony, Zinc, Thallium, Selenium	traces

According to the analyses hitherto made, the waters of the various Carlsbad thermal springs are completely identical. The essential difference between them lies in the different temperatures alone.

Generally speaking, the springs having a lower temperature are richer in free carbonic acid than the hotter ones. The analyses hitherto made have shown that the Carlsbad thermal springs have remained quite unchanged with regard to their chemical composition, since the time of the first analysis, that is, more than 100 years ago, and the temperature of the „Sprudel“ spring has also remained unaltered.

Carlsbad Water may be taken without repugnance from the outset of the cure, and is absorbed by the digestive organs without any reaction. Carlsbad Water per se will never give rise to congestion of any kind.

Therapeutic experience has shown the following results:

Carlsbad Waters alleviate pain, cramps or convulsions, as, for instance, in cases of round ulcer of the stomach, cardialgia, biliary colic, nephritic colic, &c.: they stimulate the secretions of the mucous membranes of the stomach and intestines, and **promote evacuations.** The latter are regular, painless and generally loose. In the case of patients whose intestinal canal has lost its sensitiveness through the excessive use of purgatives, more especially of a vegetable nature, this effect is only obtained after a prolonged use of the waters, which can be effectually assisted by the **addition of some Natural Carlsbad Sprudel Salt to the Carlsbad Water prescribed;** on the other hand, in the case of weak excitable constitutions, the effect at the commencement of the use of the Carlsbad Water, as sent out in bottles, will frequently be to produce diarrhœa. But at the same time **Carlsbad Water will also limit the evacuations** in those cases where (chronic) diarrhœa is due to excessive acidity of the stomachic or intestinal juices or the bile, the regulating effect exercised by the Carlsbad Waters on the evacuations will continue long after its use has been discontinued.

Carlsbad Waters **increase the secretion of urine,** though in a small degree only in those cases where a great increase of the evacuations or perspiration has taken place.

They **regulate the secretion of bile,** more especially where it is impeded and obstructed, even in cases where the disorder cannot be traced to a primary cause in the form of a liver complaint, that could be acted upon by the Carlsbad Waters, as, for instance, in the case of simple jaundice.

They regulate abnormal saccharine secretions. Carlsbad Waters have attained a world-wide reputation as a cure for diabetes.

They induce the reabsorption of adipose formations. General accumulations of fat, as well as local physiological adipose deposits, as for instance, in cases of fatty liver, are quickly dispersed in many instances by the use of Carlsbad Waters. They exercise a very considerable influence on a series of diseases due to deficient oxygenation in the presence of an inadequate change of matter in the system, as, for instance, **gout,** which, more especially in its early stages, will speedily give way to treatment by Carlsbad Waters. In cases of acid concretions in the kidneys and bladder, Carlsbad Waters will promote the formation of urea, (which has a higher degree of oxygenation than uric acid), convert the uric acid already formed into readily soluble combinations, and carry off gravel and small concretions.

According to the opinions of the most eminent clinical experts, borne out by numerous experiences of medical authorities extending over a great number of years, **the use of Carlsbad Water for home treatment is indicated in the following cases:**

Stomachic disorders: Chronic stomachic catarrh, gastrodynia (stomach-ache), ulceration of the stomach, dyspepsia, dilatation of the stomach, acidity of the stomach, spasm of the stomach, atony of the stomach and all irritations of the stomach which are concomitant symptoms of affections of other organs.

Intestinal disorders: Chronic catarrh, chronic diarrhœa, habitual constipation, duodenal ulcer, hæmorrhoids, flatulence, and affections of the intestines consequent on diseases such as typhoid and dysentery, and disturbances of the intestinal functions, consequent on mineral, vegetable or animal poison.

Diseases of the spleen: Congestion, tumours (including those consequent on intermittent fevers, &c.), and those occurring among inhabitants of marshy and tropical regions.

Diseases of the liver: Congestion, fatty liver, curable forms of icterus (jaundice), hypertrophy, incipient lardaceous liver, gallstones, catarrh of the biliary ducts, and initial stages of chronic inflammation of the liver (cirrhosis).

Diseases of the kidneys and urinary system: Chronic cystitis, chronic pyelitis, renal and urinary gravel, calculus in the kidney and bladder, (Carlsbad Waters have been used from time immemorial after operations for the removal of vesical calculi) and albuminuria (unless the last is the sequel to diseases which preclude the use of Carlsbad Waters).

Diseases of the prostate gland: Chronic congestion, in consequence of nervous disturbance in the genitalia and hypertrophy of the prostate gland.

Diseases of the uterus. Chronic catarrhal metritis and chronic infarcts thereof.

Diseases connected with the change of matter: gout, chronic articular and muscular, rheumatism, corpulency, abdominal plethora, diabetes mellitus. The use of Carlsbad Waters will not only in many cases soon cause; a disappearance of the clinical symptoms of diabetes (tormenting thirst enormous appetite, constipation, dryness of the skin) but the saccharine secretions discharged with the urine will be considerably diminished, and in most cases disappear entirely for a more or less considerable length of time. Frerich's last work on „Diabetes“ might be called an absolute apotheosis of Carlsbad as applied in this disease. Eichhorst and Naunyn have recently laid stress on the favourable effect of the Carlsbad treatment in diabetes.

All diseases which occur as a consequence of stagnation of the blood in the abdomen, (if not due to secondary growths, changes of the vascular apparatus, &c.) may be treated at home with great advantage by Carlsbad Water, which stimulates the intestinal functions and promotes evacuations.

Carlsbad Mineral Water is bottled under the most stringent hygienic precautions and only sent out in original glass bottles containing about one litre each (equalling the contents of four or five small tumblers as used for drinking at the springs). Carlsbad Water will keep for years in pure, clear and undecomposed condition, and its quality is in no way affected by transit. The water chiefly sent out is that of the „**Sprudel**“ (temperature 58,5° R. = 73,2° C. = 163,6° Fahr.).

According to old records, Carlsbad „Sprudel“ water was frequently sent out during former centuries. Early in the 18th century, the exportation of Carlsbad Sprudel water was prohibited by Imperial Decree and it was not until 1848 that, on the strength of numerous favourable reports, the sending out of Carlsbad Waters in bottles and jars, in regular commercial style, was sanctioned. The exportation has grown to such an extent that, at present, nearly three millions of bottles of Carlsbad Mineral Waters are sent out every year.

Carlsbad Water is taken either cold or warmed, according to the directions of the medical attendant. When taken cold it has an aperient effect, and is therefore chiefly ordered to be taken in this way in the case of plethoric persons, and such as suffer with chronic constipation, and generally in all cases where it is intended to produce a laxative effect on the intestinal canal. If it is intended to further promote this action, from 5 to 10 grammes of Natural Carlsbad Sprudel Salts is added. The bottled Carlsbad Water may be applied with success in all cases where the use of the Carlsbad springs would be indicated but where the patients are unable to visit the Spa personally, — that is to say, for preliminary treatment, home treatment, and for after-treatment at home or in summer resorts.

In taking Carlsbad Water, whether by way of preliminary, home or subsequent treatment, experience has shown that the mode of administration followed at the Spa itself both in regard to the dose and the intervals between the doses, is generally the most beneficial, that is to say, take it in the morning on an empty stomach. When proposing to take the water in the early morning a light supper should be taken not later than 8,30. When small doses at considerable intervals are indicated, or when a large quantity is to be taken in the course of the day, a small tumblerful is usually taken, under medical advice, between breakfast and lunch or dinner, or between dinner and supper. If the water is to have a laxative effect a small tumblerful may be taken immediately before retiring.

Carlsbad Water may be taken, according to the season and the atmospheric conditions, either when taking no outdoor exercise or only moderate exercise; it should be sipped slowly, at the temperature prescribed by the medical adviser. To warm the water, remove the cork and, after reinserting it, place the bottle in a vessel of lukewarm water, and heat the latter until the water in the bottle has attained the required temperature or each tumblerful may be heated separately in the same way. The interval prescribed between two doses is generally from 15 to 30 minutes, and the meal should be taken, according to the condition of the patient and the appetite felt, about half an hour or an hour later.

The diet to be observed is regulated by the medical adviser according to the disorder and constitution of the patient, but it may be taken as a general rule, that the diet should be as simple as possible, both in regard to food and drink, and that easily digestible food only should be taken, particularly at night. Heavy, fat, highly seasoned dishes, sweets, &c., should be avoided, as also full-bodied wines, beers and spirits. The patient should not smoke much or strong tobacco immediately before or after taking the water. He should also avoid physical or mental over-exertion, late hours, &c.

In order to promote the cure frequent and gentle open air exercise is recommended whenever the state of the weather permits it. Baths taken more or less frequently, according to habit and the existing atmospheric conditions, are of great importance in facilitating the cure. Home treatment with Carlsbad Water may be restored to at any time, but it is for the medical attendant alone to determine when and how long it should be applied, and what doses are to be taken, as symptoms which may present themselves in the course of the treatment may be of vital importance as affecting the result obtained.

It should be noted that the usual quantity for a course of home treatment may be put down at from 30 to 50 bottles.

B. Products of the Carlsbad Springs.

The Natural Carlsbad Sprudel Salts, crystallized or in powder.

The most important product derived from Carlsbad Sprudel water is **Natural Carlsbad Sprudel Salt**, briefly known as **„Carlsbad Salt“** which are at present sold in the form of crystals and in powder. Crystallized Carlsbad Salts have been known for nearly two centuries, for it is on record that, in 1718, Gottfried Berger suggested that a laxative salt might be obtained from the Carlsbad Sprudel water. Carlsbad Salts were then produced by Borries, by evaporation of Carlsbad Water over an open fire, and were frequently recommended by the famous Dr. Friedrich Hoffmann, of Halle, as a substitute for Carlsbad Waters, the exportation of which was prohibited at that time. When, subsequently the famous Carlsbad physician Dr. David Becher introduced his process of evaporation based on the natural heat of the Sprudel water, the production of Carlsbad Salts was taken up by the Municipality itself, under an Imperial Decree of the year 1764, and has been in the hands of the Civic Authorities ever since. Dr. Becher's evaporation process was carried on for nearly 120 years in the immediate neighbourhood of the springs, but the plant had to be removed at the time of the reconstruction and enlargement of the colonnade surrounding the springs in 1878. The present Carlsbad Salt Work was erected in 1869 and the Sprudel water conveyed there in cast-iron pipes was at first evaporated in flat wrought-iron evaporating pans heated from below by furnaces and subsequently by means of high-pressure steam circulating in pipes, until the liquid was sufficiently concentrated to cause crystallization. Sprudel water is now evaporated by repeatedly utilising the heat of the steam in a vacuum apparatus.

The Natural Carlsbad Sprudel Salt, obtained by Dr. Becher's crystallization method forms white transparent crystals, of a salty bitter taste, and possesses an alkaline reaction. According to Ragsky it contains:

Sulphate of soda	37,695 %
Chloride of sodium	0,397 %
Carbonate of soda	5,997 %
Sulphate of potash	traces
Water of crystallization	55,520 %

The Natural Carlsbad Sprudel Salt in its crystallized form is an antacid, a ready solvent, diuretic and, if taken in a fairly large dose, a mild aperient. It may be taken either to assist the action of the Carlsbad Waters administered at home, or independently; doses of from 1 to 2 teaspoonsful should be taken dissolved in water.

It is readily soluble in warm water and its effect will be safer when taken in this way; the temperature of the water should be from 99,5 to 122° Fahrenheit. It may also be taken in cold water if preferred. Any turbidity which may appear when the salt is dissolved in hard water will not in any way impair its efficacy. Carlsbad Salt should be taken, if possible, on an empty stomach, preferably 30 or 40 minutes before breakfast. If crystallized Carlsbad Salt is used to assist the effect of Carlsbad Water whether taken at home or at the springs, it should be taken dissolved in Carlsbad Water as directed by the medical attendant.

In order to avoid the decomposition or fusion of the crystals, crystallized Carlsbad Salt must be kept in a dry cool place, as the natural crystallized salt will commence to fuse at 88° Fahr. Disintegration of the crystals will be obviated by keeping the bottles well closed.

Besides Becher's crystallized Carlsbad Sprudel salt, a **Carlsbad Salt in powder,** prepared according to the directions of Prof. Dr. Ernst Ludwig, Medical Court Councillor of Vienna, was introduced in 1882; this salt contains **all the soluble constituents of the Sprudel spring water.** As Sprudel water is evaporated the dry residue becomes saturated at the Sprudel Hall in a special apparatus with the natural carbonic acid that escapes from the spring, thus replacing the carbonic acid of bicarbonates, expelled during the evaporation.

The **natural Carlsbad Sprudel Salt in powder.** while considerably more pleasant to the palate is preferable to crystallized Sprudel Salt, owing to its not being liable to fusion or decomposition during the hot season or in hot climates. This salt in the powdered form, according to Prof. Ernst Ludwig's analysis (made in 1890) is composed of:

Carbonate of lithia	0,20 %
Bicarbonate of soda	36,11 %
Sulphate of potash	3,31 %
Sulphate of soda	41,62 %
Chloride of sodium	18,19 %
Fluoride of sodium	trace
Borate of soda	0,03 %
Silicic acid anhydride, oxide of iron, potash and magnesia	traces
Water	0,44

The normal dose of 5 grammes of Natural Carlsbad Sprudel salt (in powder) contains:

Carbonate of lithia	0,010	Grammes
Bicarbonate of soda	1,807	„
Sulphate of potash	0,166	„
Sulphate of soda	2,083	„
Chloride of sodium	0,910	„
Fluoride of sodium	trace	
Borate of soda	0,002	„
Silicic acid anhydride, oxide of iron, potash and magnesia	traces.	
Water	0,002	„

Natural Carlsbad Sprudel Salts (both crystalline and in powder) are packed for the English and American market in round glass bottles holding 100 grammes bearing the registered trade mark on the large label and on the narrow label over the stopper.

No Carlsbad Salts, except such as are made up in the manner stated, are genuine or prepared from the Carlsbad Sprudel water under the direction of the Carlsbad Municipality. Any so called Carlsbad Salts placed on the market in any other form are spurious, and customers are cautioned against purchasing them.

It should be noted that Carlsbad Salts, both crystalline and in powder, are imitated and adultered in many ways. and such imitations (salts artificially prepared by simply mixing certain ingredients) differ, both in composition and in effects, from the Natural Carlsbad Salt obtained from the Sprudel water. Moreover such imitations, owing to the impurities which they contain, will sometimes act injuriously. Attention should therefore be paid to the Trade Mark. In addition to the pictorial trade mark devices, the verbal trade marks: **„Karlsbader Salz“, „Sprudelsalz“** and **„Karlsbader Sprudel-Salz“** are registered.

250 kilos of salts were prepared in 1788, in 1868 the amount prepared was 3000 kilos and now over 80,000 kilos are prepared and placed on the market annually.

Carlsbad Sprudel Salt in the form of powder.

According to Dr. W. Jaworski's researches, the use of Carlsbad Sprudel Salt in the form of powder has been attended by favourable therapeutic results in the following disorders:

1. In all cases of **excessive secretion of gastric juice** (catarrhus acidus, Jaworski) from 1 to 2 teaspoonsful are recommended, and in cases of very acute hypersecretion still larger doses, three teaspoonsful, should be taken systematically for a prolonged period; it should be taken dissolved in water at a temperature of from 104 to 122° Fahrenheit. If the excessive **acidity of the stomach is combined with atony or slight dilation of the stomach,** it is advisable to take Carlsbad Sprudel Salt in powder, dissolved in Carlsbad Mineral Water.

2. In cases of **insufficient secretion of gastric juice,** small doses, not exceeding one teaspoonful of salt, may be taken in a cold solution, preferably in aerated water.

3. **Acute gastritis** will yield to doses of from one-half to one teaspoonful of powdered Sprudel Salt taken in a cold solution, on an empty stomach, and will promote a healthy appetite. Dyspepsia due to overloading the stomach (dyspepsia ab ingestis requires larger doses.

4. Carlsbad Sprudel salt has long been warmly recommended especially by van Ziemssen and Leube, in the **therapeutic treatment of ulceration of the stomach.** A teaspoonful should be dissolved in about one pint of lukewarm water and taken in three doses. The excellent effects of Carlsbad Salts in treating ulceration of the stomach are due to the action of these salts on the increased secretion of stomachic juice and on the intestinal catarrh by which such ulceration is generally accompanied.

5. For the purpose of **purging the stomach in cases of dilatation** accompanied by lowered activity of the mechanical functions, Carlsbad Sprudel Salt in powder has been found to prove very efficacious. In such cases it should be taken in a warm solution, (of the temperature of the body), dissolve 2 or 3 teaspoonsful of salt in from 4 to 5 pints of pure water.

6. Carlsbad Sprudel Salt in powder is one of the very best **occasional aperients.** The doses will depend on the individual, the ordinary dose being from 1 to 2 teaspoonsful.

7. In cases of **habitual constipation** the usual dose should not exceed 2 teaspoonsful. If it is found necessary to resort to a larger dose it should be dissolved in Carlsbad Water or some mineral water impregnated with carbonic acid.

8. **In the case of mucous intestinal catarrh** accompanied by a tendency to constipation and retention of fæcal matter, Carlsbad Salt in powder may be administered in doses of up to 2 teaspoonsful. In certain cases the treatment may be assisted by clysters containing from 1 to 3 per cent of salt.

9. In cases of **icterus catarrhalis,** powdered Carlsbad Salt should be administered in doses of 2 or 3 teaspoonsful in hot water (104 to 122° Fahrenheit) for at least a fortnight.

10. In cases of **cholelithiasis and tendency to gallstone formation,** powdered Carlsbad Salt should be used as prescribed for icterus catarrhalis.

11. In cases of **fatty liver** and in the **initial stage of cirrhosis of the liver,** this powdered salt, administered in doses of up to 2 teaspoonsful, will successfully promote the circulation of the portal vein system and stimulate the secretion of bile.

12. In **general fatty degeneration,** Carlsbad Sprudel Salt in powder should be used in copious doses, of from 2 to 4 teaspoonsful daily, in lukewarm water. But at the same time a dietetic regimen must be adopted to sustain the strength of the atient.

13. In **diabetes mellitus,** in which Carlsbad Waters will in almost all cases have the effect of stopping the saccharine secretion, favourable effects have also resulted from the use of Carlsbad Sprudel Salt in powder. It should be taken in a very mild solution (say one teaspoonful to 2 pints of water) at 122° Fahrenheit, and the treatment should be continued for several weeks, at the same time keeping to an antidiabetic diet, but the treatment should be discontinued if any very perceptible loss of weight is noticeable.

14. In **arthritis** arising from a **lithaemic disposition** Carlsbad Sprudel Salt in powder should be taken daily in hot water (120° Fahrenheit), two teaspoonsful of salt to one quart of water.

The formation of gravel and calculous concretions, likewise due to a lithæmic disposition, can be suppressed or retarded by systematic treatment with Carlsbad Sprudel Salt in powder.

15. In cases of **pyelitis and cystitis** in a sub-acute form hot diluted solutions of the salts are particularly beneficial on account of their diuretic action and their alkalinising effect on the urine.

16. Lastly, it should be mentioned that liberal injections of 1% solution of Carlsbad Salt in powder, systematically used at a temperature of 122° Fahrenheit, have proved to be of good therapeutic effect in cases of **amenorrhœa, chronic metritis, perimetritic** and **parametritic exudations,** and **perityphlitis,** and more speedy emollition, dissolution and absorption of the exudations will result from the introduction of the solution into the pelvic organs.

Special attention should finally be drawn to the fact that small doses of Carlsbad Sprudel Salt, from 1/2 to 2 grammes taken several times a day, have proved very beneficial and useful in many other cases, such for instance as abnormal acidity of the stomach, (heart-burn, acid eructations, &c.). It may be taken after meals instead of the digestive powders or bicarbonate of soda hitherto in vogue, also when dissolved in very warm water in the proportion of half a gramme of salt to 100 grammes of water it is an excellent remedy for chronic diarrhœa, lithæmic diathesis, gout, tendency to calculus and calculous concretions, as well as in all these disorders when large doses cannot be tolerated or when the aperient effect is stronger than seems desirable.

As regards the administration of Carlsbad Sprudel Salt in powder, the following results, obtained by experiments, may be taken as criteria for general guidance.

The most suitable time for taking the salts is in the morning, on an empty stomach, and immediately after the patient awakes. In intestinal disorders this is the best period of day, as at this hour the salt can exert its full effect on the inactive organs, untrammelled by other influences. Again in disorders of the more remote organs, the early hours are the most suitable because at this period the various constituents of the salts are not likely to undergo any abnormal changes in the primary digestive channels, and will thus be best absorbed and introduced into the circulation, while if the salts are introduced into the stomach when full or engaged in digestive functions, the food, even on administration of a moderate dose, will be carried down, undigested, into the lower portions of the alimentary canal, and the irritation caused there, may give rise to abdominal trouble. In order to induce evacuations on a full stomach, Carlsbad Salt in powder must be taken, as a rule, in doses twice as large as when taken fasting. If the salt is taken during the day it should be taken one or two hours before a meal.

A single small dose of this salt would be from a half to one teaspoonful, a medium dose from 1 to 2 teaspoonsful, and a large dose 3 teaspoonsful, taken dissolved in a tumblerful of water, — which would constitute approximately a 2 per cent solution. More highly concentrated solutions than 5 per cent should not be taken. Medium and large doses should be subdivided into two or three smaller ones, as a single large dose would either necessitate taking a large volume of liquid or would have to be introduced into the stomach in a too highly concentrated solution, likely to cause nausea and vomiting.

Carlsbad Sprudel Salt in powder is as a rule taken in solution generally in good drinking water. If hard or spring water is used the solution may appear turbid, this, however, does not interfere with the effect of the salts. Many can tolerate the salt more easily when it is enclosed in a wafer, in the dry state. After swallowing the filled wafer, a suitable quantity of water should be drunk. The most suitable water for dissolving it, and intensifying its effect, is Carlsbad Mineral Water as supplied from the springs, and the best solvent for rendering the dissolved salt more palatable is a mineral water impregnated with carbonic acid, such as, for instance, alkaline natural mineral waters. A cold solution of Carlsbad Salts is best prepared by first putting the quantity of salts to be taken in a tumbler, then pouring on it one fourth of a tumblerful of lukewarm water and stirring until the salts dissolve. After the solution has cooled, and immediately before taking it, the glass should be filled up with cold water. A lukewarm solution should have a temperature of about 97° Fahrenheit and a warm solution about 122 to 131° Fahrenheit. A warm solution of Carlsbad Salt in powder will in most cases have a less laxative effect than a cold solution. A warm solution must not be prepared by putting the salt in cold water and then heating the solution, but the salt must be dissolved in warm water, as otherwise the protracted heating would transform the bicarbonate of soda into the monocarbonate, which is less readily absorbed.

When taking repeated doses of powdered Carlsbad Salt a certain interval should be allowed to elapse between each dose, the length of such interval to be determined by the medical adviser according to circumstances. As it is important in stomachic disorders that the salt should exert its effect for the longest possible time, longer intervals, say of about three quarters of an hour, between the doses are indicated in such cases. In most other cases, half an hour's interval between two doses of one *teaspoonful each, is the ordinary rule.* In the case of a dose of *three teaspoonsful, subdivided into three single doses, the interval between the first and the second* may be half an hour, while that between the second and third should be extended to three quarters of an hour. If it is intended to produce a rapid evacuation it is advantageous to shorten the first interval to a quarter of an hour. The time to be allowed between the dose and breakfast should vary according to the dose and the condition of the patient, and had best be determined by the medical adviser. As far as the patient is concerned, the appetite will afford a guide.

Carlsbad Sprudel Lozenges (Pastilles).

Carlsbad Sprudel Lozenges, prepared from the Carlsbad Sprudel Salts, with sugar, are used in cases of excessive acidity of the stomach, eructations, heart-burn, &c.

In cases of excessive acidity of the stomach and slight digestive disturbances, from 3 to 5 pastilles should be taken about a quarter of an hour after every meal, in other cases, Sprudel Pastilles may be taken two or three times daily, in the same number, irrespective of meals. The number of pastilles taken within 24 hours may be increased to 25. The pastilles should not be dissolved in water, but put into the mouth one by one.

The Carlsbad Sprudel Lozenges are only sold in boxes containing 44 each. **The boxes, as well as the labels which secure the lid, bear the trade mark.**

For home treatment with mineral baths.

Carlsbad Sprudel Soap.

Carlsbad Sprudel Soap, prepared with Carlsbad Salts, is a most efficacious remedy for impurities of the skin, on the face and hands, as well as in various chronic skin disorders; it is mainly used in those cases where soap baths are prescribed for after-treatment, after a Carlsbad cure, also as an addition to poultices for so-called „cold abscesses“, and lastly, it is used, dissolved in the ordinary bath, to assist the effect of the Carlsbad Mineral Water treatment.

From 3 to 6 oz are required for a child's bath and at least 10 oz to 1 Lb. for an adult's. Carlsbad Sprudel Soap, prepared under the direction of the Carlsbad Municipal Authorities, is prepared in cakes of about 3 oz each (100 grammes), with the words „Karlsbader Sprudelseife“ stamped thereon. Carlsbad Sprudel Soap is sold in boxes bearing the trade mark, none other is genuine.

Carlsbad Sprudel Lye Salt

in 2 Lb. packets.

Carlsbad Sprudel Lye Salt is prepared from the water of the Sprudel spring and contains the most efficacious ingredients of a Sprudel bath, in a concentrated form. To prepare the bath, dissolve the lye salt in a bath containing from 5 to 8 gallons of hot water; well stir it and thereupon fill the bath up as required, regulating the temperature from 88 to 100° Fahrenheit.

For an adult's bath a whole 2 Lb. packet of lye salt may be used; a child's bath, according to age, will require from $^1/_2$ Lb. to 1 Lb.

Carlsbad Sprudel Lye,

sold in reputed quart bottles.

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Carlsbad Mineral Water and its products are forwarded exclusively by

Karlsbader Mineralwasser-Versendung

Löbel Schottländer

Carlsbad, (Bohemia) **Austria.**

As well as by the **Sole Agencies**
for England and the Colonies:
Messrs. Ingram & Royle Ltd., London,
and for **The United States of America:**
Eisner & Mendelson Co., New-York.

Pamphlets concerning the use of the Carlsbad Mineral Waters and their products, translated into all modern languages, may be obtained post free either from the „Bürgermeisteramt“ (Mayor's Office) in its capacity as Administrative Office of the Spa, or from Löbel Schottländer, Carlsbader Mineralwasser-Versendung, Carlsbad, or from the aforesaid Sole Agencies.

Special Notice.

The Mineral Waters of Carlsbad and the products derived from the „Sprudel“ spring water are legally protected, not only by means of the pictorial trade mark devices reproduced above, but also by the following verbal trade marks:

“Karlsbad,” “Sprudel,” “Karlsbader Wasser,” “Karlsbader Sprudel,” “Karlsbader Schlossbrunn,” “Karlsbader Mühlbrunn,” also **“Karlsbader Salz,” “Karlsbader Sprudelsalz”** and **“Karlsbader Sprudelpastillen”.**

Schlesische Buchdruckerei v. S. Schottlaender, Breslau III.